Abstract

Single Valve Fuel Cell Stack Gas Flow and Containment

A vane (31) at the juncture of orthogonal conduits (25-28) allows flow of air to and from the air inlet/outlet manifold (12) of a fuel cell stack (11) when it is disposed in a first position, and totally blocks the conduits (25, 26) so as to isolate the air flow fields of the fuel cells (17, 18) when in a position normal to the first position. A vane (41) can comprise the divider of the air inlet/outlet manifold when in a vertical position, and totally block off the manifold when in a horizontal position. A vane (59) can align with the divider (24) of an air inlet/out manifold when in a vertical position, and block the passage between the manifold and conduits (44, 46) when in a horizontal position. Similar vanes may be used for single-valve selection of flow or containment of fuel reactant gas.